

Preparing for Part 3 of the ABR Diagnostic Physics Exam

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From the ABR



“Certification is not a hallmark of excellence. It is simply documentation that at the time of the oral exam you had a firm grasp of the essentials of the discipline necessary for you to work with healthcare providers and patients.”

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Outline



- Exam details
- Preparing for the exam
- During and after the exam

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Where + When



- Louisville, Kentucky
 - Crown Plaza Hotel
 - (by the airport)



- May 15-18, 2016
- Specific date/time sent in March
 - ~8 sessions in 2015

May 2016 						
Su	Mo	Tu	We	Th	Fr	Sa
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

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Eligibility and Cost



- Eligible for the Oral Exam after passing Part 2
 - No other requirements
- Assuming success on Part 2, an invitation for the Oral Exam will be sent out in early 2016

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Exam Preparation



- Familiarize yourself with the exam
 - Question categories
 - Question format
 - Exam format
- Prepare to study
 - Textbook, reports, papers
 - Study partners (in-person, remote)
 - Coworkers with complimentary expertise
- Don't wait to start
 - Dedicate time each week to study
 - Find weaknesses, and address them early

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Oral Exam Categories



Category	Subject
1	Radiography, mammography, fluoroscopy, and interventional imaging
2	Computed tomography
3	MRI and ultrasound
4	Informatics, image display, and image fundamentals
5	Radiation, dosimetry, protection, and safety

- 5 examiners, 30 minutes each
- 5 questions per examiner
- Each examiner asks questions from **ALL** categories (not just one category)

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Exam Focus



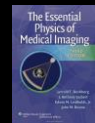
- Part 3 covers the same areas as Part 2
 - Similar background material
 - Expectation of similar knowledge base for the theory portion of questions
 - **Major Difference:** Part 3 doesn't require calculations
- Part 3 expects that you are now applying the theory into everyday practice
 - Questions tend to explore both the theory *and* the application
 - **Tip:** Draw upon your clinical experience

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Review Resources



- *Essential Physics of Medical Imaging* by Bushberg, et al.
 - Good general resource
 - Review previously studied topics
 - Lots of color figures (new edition)
- Go-to source for basic x-ray principles, image science, informatics, radiation safety
 - Supplement with topic-specific texts for CT, MR, US



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ACR Accreditation



- ACR Quality Control Manuals and Phantom Instructions
 - Know the phantoms, what they look like when imaged, and how to score them



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Experienced Colleagues



- Certified Physicists
 - Work with other physicists that have been through the test
 - If possible, focus on those that work in areas where you have less experience
 - Conversations about clinical topics may be more useful than hours of reading
 - Spend time each week in the months leading up to the exam to have meaningful discussions about clinical practice

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Group Study



- Divide and conquer
- Meet regularly + motivate
- Mock oral exam questions
- Fill-in knowledge gaps between members
- Doesn't need to be in-person
- Meet in Louisville early and study as a group

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Day of Exam



- What to bring:
 - Photo ID (license, passport, military ID)
- What not to bring:
 - *Anything else*

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Day of the Exam

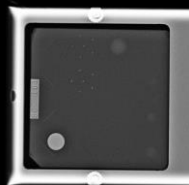


Examiner	Room	Time
Dr. Smith	Room 101	7:00 AM
Dr. Jones	Room 102	7:30 AM
Dr. Brown	Room 103	8:00 AM
Dr. White	Room 104	8:30 AM
Dr. Black	Room 105	9:00 AM

- Five examiners (separate rooms)
- Five questions per examiner
- 30 minutes per room

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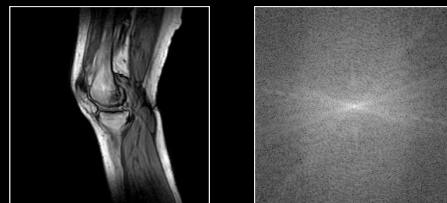
Mock Exam Question



- What modality likely generated this image?
- What is this image showing?
- How would you score this image?
- What are some other aspects of QC in mammography?

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Mock Exam Question



- What modality generated these images?
- What is the relationship between these two images?
- What would happen to the image on the left if this happens?

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During the Exam



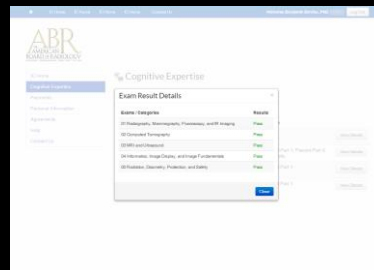
- Answer questions clearly and concisely
- Ideally, questions set stage for a broader + deeper discussion about the topic
- Follow up questions
- If you don't know the answer...
 - be honest
 - discuss what you do know about the topic
 - examiners often help steer/guide
 - there are 5 examiners!

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After the Exam



- Results are posted within a week



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Pass Rates



First Time Takers			
Conditioned	Fail	Pass	Total
12%	22%	65%	242
CAMPEP Graduate – First Time Takers			
Conditioned	Fail	Pass	Total
18%	5%	77%	39
CAMPEP Residency – First Time Takers			
Conditioned	Fail	Pass	Total
0%	19%	81%	31
CAMPEP Graduate and Residency – First Time Takers			
Conditioned	Fail	Pass	Total
7%	14%	79%	29

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Possible Results



- Pass
 - You're done with initial certification...
 - ...on to MOC!
- Conditional (fail one of the five sections)
 - You must retake one section of the oral boards
 - Two examiners, five-ish questions each
 - All questions are from the missed category
- Fail (fail two or more sections)
 - Retake the exam next year

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Final Tips



- **Goal:** Demonstrate competence and working knowledge of the clinical practice of diagnostic medical physics
- Draw upon your clinical experience
- Be confident and be honest
- Good luck!

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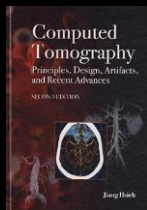


Thank you

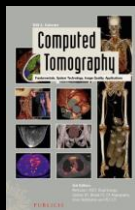
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CT Resources

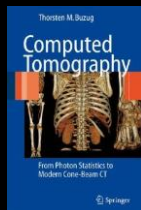
- CT is its own exam category
 - Bushberg has a good review of the topic
 - Other CT-specific texts are available



Hsieh



Kalender

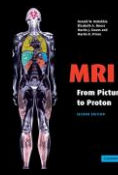


Buzug

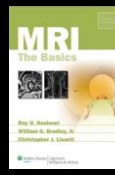
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MR Resources

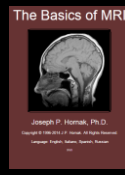
- MR-scientist-level knowledge of MR principles and operation is unnecessary
 - Introductory level texts and references are sufficient



McRobbie



Hashemi



Hornak

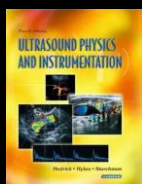


Nishimura

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Ultrasound Resources

- Like CT and MR, Bushberg covers most of the basics to an adequate level
- Additional references are available



Hedrick

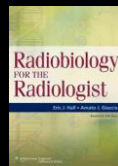


RadioGraphics

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Radiation Safety Resources

- Radiation safety covers a variety of topics
 - Expert level knowledge for any given subject is unnecessary



Hall



BEIR VII



NCRP 147



Wagner

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Informatics Resources

- Informatics is very broad
 - Not covered by many physicists
 - Focus on what is covered (PACS and displays)



Pianykh



DICOM
(Part 14)



TG-18 Report
(Online Report 3)

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AAPM Reports

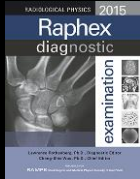
- Display Monitors: Online Report 03 (TG18)
- QC in Diagnostic Radiology: Report 74
- Computed Radiography: Report 93
- Digital Radiology: Report 151
- CT Radiation Dose: Report 96
- MR Acceptance Testing: Report 100
- Exposure Index: Report 116
- SSDE in CT: Reports 204/220

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Question Sources



- Good example question sets for Part 3 are harder to find than for Parts 1 and 2
- General questions are good for review, but not necessarily representative



Raphex



Huda

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Other Resources



- Code of Federal Regulations
 - Performance Standards for Ionizing Radiation Emitting Products (Title 21, Part 20)
 - Standards for Protection Against Radiation (Title 10, Part 20)
- MQSA Regulations
 - FDA website
 - FFDM manufacturer guides for QC
- State Policies
 - Good to demonstrate knowledge of local laws

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